

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
15 December 2005 (15.12.2005)

PCT

(10) International Publication Number  
**WO 2005/119959 A1**

(51) International Patent Classification<sup>7</sup>: **H04L 1/18**,  
H03M 13/27

(21) International Application Number:  
PCT/IB2004/001800

(22) International Filing Date: 2 June 2004 (02.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): **NOKIA CORPORATION** [FI/FI]; Keilalahdentie 4, FIN-02150 Espoo (FI).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **ZHUYAN, Zhao** [CN/CN]; Jiu Jie Fang, 908-2-3, Hai Dian District, Beijing, 100038 (CN).

(74) Agent: **BECKER, Eberhard**; Becker, Kurig, Straus, Bavariastrasse 7, 80336 München (DE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

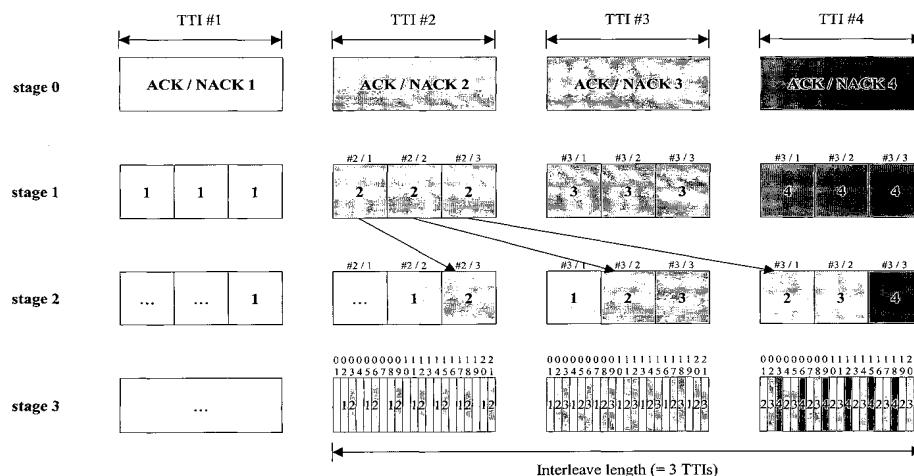
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ACKNOWLEDGEMENT SIGNALING FOR AUTOMATIC REPEAT REQUEST MECHANISMS IN WIRELESS NETWORKS



(57) Abstract: The present invention purposes an enhanced acknowledgement / non-acknowledgement signaling applicable to automatic repeat request mechanisms. The automatic repeat request (ARQ) mechanisms is operable with a sender of data packets. The signaling comprises a number of ACK/NACK messages, which are dedicated to be transmitted on a time-multiplexed channel, which is partitioned into transport time intervals (TTIs) in accordance with the timemultiplexing. Within each transport time interval (TTI), a number of predefined shares is defined. Each share has a predefined extent in time. Each ACK/NACK message is transmitted within a predefined selection of shares. The total extent in time of the predefined selection of shares corresponds to an extent in time of the transport time interval. The inventive method enables to extend the interleave length for the transmission of a ACK/NACK messages without requiring only radio frequency resources, required with known signaling methods.